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SALSOLA KALI GROWING INLAND.—Every summer, for the last five years, on botanical excursions, I have found at Newburgh (sixteen miles from this place) the *Salsola Kali*, growing quite abundantly on the Erie railroad near that city. All the works on Botany that I have, designate this as a *maritime* plant, and give no other habitat for it. Those specimens which grow most vigorously are found covering the side of an embankment (formed of dry, loose sand) facing the south, and consequently exposed to the scorching rays of the sun all summer. The material in which the plants are rooted is not one from which I should suppose that they could derive any of those saline matters that enter so largely into their composition.—W. R. GERARD.

ROBINIA HISPIDA.—The responses to the query in the November number about this plant are unanimous, and direct to the point, that it is simply and truly indigenous in the pine barrens of the low country, and on barren or rocky hill-tops of the upper country of the Atlantic Southern States. Dr. M. A. Curtis has fruiting specimens collected on the summit of Table Rock, North Carolina (a conclusive station as to nativity), and thinks that it fruits in the lower country as well.—A. GRAY.

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—NATURAL HISTORY SECTION. *Burlington, Vt., August* 21-26, 1867.—"The Insect Fauna of the Summit of Mount Washington, as compared with that of Labrador." By A. S. Packard, jr., M. D. The following notes are thrown together rather to give a summary, from data only approximately correct, of our present knowledge of the distribution of Alpine and Arctic Lepidoptera, than to give anything like a complete account.

The summit of Mount Washington, or that portion lying above the limit of trees, agrees in its climate and other physical features very closely with those of the coast of Northern Labrador, as observed at Hopedale, in latitude 55° 35′.

The seasons correspond very exactly, as the snow melts in the early summer, and ice is formed early in the autumn at about the same dates.

As is well known, the Alpine flora of the White Mountains is identical with that of the arctic regions, which extends far southward along the Atlantic shore of Labrador. Not only is the flora identical so that no species of plant is known to be restricted exclusively to our Alpine summits, but the times of leafing, of flowering, and fruiting of plants is much the same. Such was observed in the *Rubus chamæmorus* and *Arenaria Greenlandica*, for example.

It is also the same apparently with the fauna. The *Chionobas semidea* flies late in July and early in August, in greatest abundance, at the same time that its representative species swarm over the bare rocky hill-tops of the Labrador coast. Their appearance heralds the close of summer, both on the extreme summit of Mount Washington and the exposed hills of Labrador.

Most is known of the Lepidopterous fauna of Alpine and arctic regions, both in America and Europe, and our data will be drawn from this group of insects. In Europe, Thunberg, Zetterstedt, Duponchel, Boisduval, Staudinger, and Wocke, have studied the circumpolar lepidopterous fauna; Möschler and Christoph, Clemens and Scudder and the writer, have described the insects of Labrador, and Messrs. Scudder, Shurtleff, and Sanborn have explored the insect fauna of Mount Washington, and other Alpine summits.

According to Dr. Staudinger, out of sixteen butterflies found in Finmark, two only (*Erebia Manto* and *Argynnis Thore*) occur in the Alps, and also in Siberia. But one butterfly, *Chionobas Aello*, so far as we have been able to learn, is peculiar to the Alps. Of 122 species of lepidoptera inhabiting Labrador, 81 are found only in Labrador, and arctic America, while thirty-one are circumpolar, namely, occur on both sides of the Arctic Ocean, being found in Finmark, Iceland, and the mountains of Norway; six species inhabit the summit of Mount Washington, and four or five of the whole number also inhabit the Swiss Alps. Two of the European Alpine species are found on Mount Washington, New Hampshire.

Certain genera among Insects, as among Mollusca, are almost exclusively arctic. Such are *Chionobas* and *Anarta*, which are paralleled by the two marine genera *Astarte* and *Buccinum*.

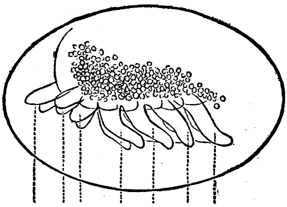
Two species (*Polyommatus Franklinii* and *Cidaria polata*) abounding in Labrador and the polar regions have not yet been found on Mount Washington. This is paralleled by the occurrence of certain mollusca, e. g. *Leda truncata*, in the high arctic seas, which have become extinct in the seas southward, where they are now found fossil; so that the distribution of the arctic insect fauna seems to be paralleled by that of arctic marine invertebrates. As in the temperate seas certain abysses and banks swept by the arctic currents are peopled by outliers of an Arctic marine fauna, so the Alpine elevations or atmospherical abysses, rising out of a temperate into an Arctic climate, seem peopled by outliers of an arctic land fauna. These outliers are relics of an arctic fauna, that during the early part of the Quaternary period, *i. e.* the Glacial Epoch, peopled the surface of the temperate zone.

We cannot suppose a special creation of organized beings for the Alpine summits. *Chionobas semidea*, thus far only known to inhabit the summit of Mount Washington, may still be found northward; or, if not, probably became extinct north, finally localizing itself on the single peak where it now occurs.

"On the Development of a Dragon-fly, *Diplax*." By A. S. Packard, jr., M. D. 1. In all the eggs observed, the blastoderm had been formed, and consequently the blastodermic cells had disappeared, and, at this stage, there was a clear space about what is probably the anterior pole of the egg, where the head is eventually to be developed.

2. In the next stage (Fig. 1) the head is partially sketched out, with the rudiments of the limbs and mouth-parts; and the sternites or ventral walls of the thorax and of the two basal rings of the head appear. The anterior part of the head, the so-called "procephalic lobe" overhangs and conceals the base of the antennæ.

Fig. 1.



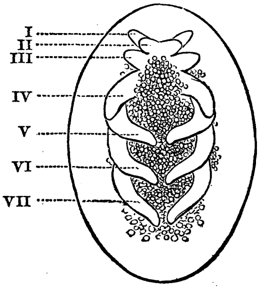
Side-view of embryo. The procephalic lobe is not shown. I, antennæ; II, mandibles; III, maxillæ; IV, second maxillæ [labium]; V-VII, legs. These numbers and letters are the same in all the figures. The underside [sternum] of six segments are indicated.

The antennæ, mandibles, and maxillæ form a group by themselves, while the second maxillæ (or labium) are very much larger and turned backwards, being temporarily grouped with the legs.

There are traces only of the two basal sterna of the abdomen. This indicates that the abdominal segments grow in succession from the base of the abdomen, those at the extremity appearing last.

The development of the hinder or post-oral rings of the head, together with the antennal segment, *i. e.* the first one in front of the mouth, at this time accords with that of those of the thorax, so that the process of development of the two regions and their appendages are identical throughout.

Fig. 1, *a*.



Ventral view of the same.

3. In the next stage (not figured) the yolk is completely walled in, though no traces of segments appear on the dorsal and pleural areas. The yolk granules fill the entire cavity of the body extending into the appendages. The head has enlarged, the remaining abdominal urites appear, and the abdominal lobe or post-abdomen

is indicated, being curved under the body, and touching the middle of the abdomen.

The rudiments of the eyes appear as a darker rounded mass of cells indistinctly seen through the yolk-granules, and situated at the base of the antennæ. The three anterior appendages, when seen sideways, are equal in size and length, the antenna being very contiguous to each other.

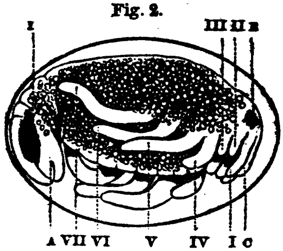
The second maxillæ are a little over twice the length of the first maxillæ and are grouped with the legs, being curved backwards. They are, however, now one-third shorter than the anterior legs. The second maxillary sternum is still visible.

The legs are now unequal in size, the two anterior pair being of the same length, though the middle pair are slightly thicker than the first pair; while the third, or posterior pair, are a third longer, and drawn back upon the side of the body, the ends nearly reaching the end of the egg.

The tip of the abdomen (or post-abdomen) consists of four segments, the terminal one being much the larger, and obscurely divided into two obtuse lobes.

The abdominal sterna (urites) are now well marked, and the nervous cord is represented by eight or nine large oblong-square (seen side-ways) ganglia, which lie contiguous to each other.

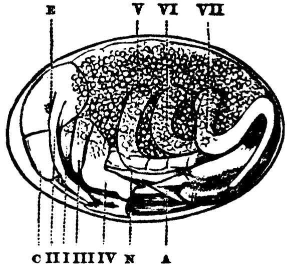
Fig. 2.



An embryo much farther advanced. C, clypeus, forming a part of the "procephalic lobe;" E, eye; A, bi-lobed extremity of the abdomen; I. the rudiments of the intestine.

The formation of the eyes, the post-abdomen, the sterna, and median portion of the nervous cord seem nearly synchronous with the closing up of the dorsal walls of the body over the yolk-mass.

Fig. 3.



The embryo still farther advanced. N, nerve knots or ganglia

4. The succeeding stage (Fig. 2, compare Zaddach's fig. 40) is signalized by the appearance of the rudiments of the intestine, while the second maxillæ are directed more forward.

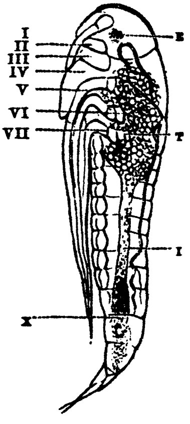
5. This stage (Fig. 3), is characterized by the differentiation of the head into the ophthalmic ring, or eye-bearing piece, and the supraclypeal piece, and clypeus, together with the approximation of the second pair of maxillæ, which, when united, form the labium, the extremities of which are now situated in the middle of the body.

The antennæ now extend to the middle of the labium, just passing beyond the extremities of the mandibles and maxillæ. The suture separating the eye-bearing piece from the antennary, mandibular, and maxillary pleurites and supra-clypeus, is distinct, the clypeus is now very distinct, and as large, seen laterally, as the supra-clypeus, though differing from it essentially in form.

The abdomen is now pointed at the extremity and divided into the rudiments of the two anal stylets, which form large acute tubercles. The yolk mass is now almost entirely enclosed within the body walls, forming an oval mass.

6. At this stage, the embryo is quite fully formed, and is about ready to leave the egg. The three regions of the body are now distinct. The articulations of the tergum are present, the yolk mass being completely enclosed by the dorsal walls. The ventral ganglia are fully formed and are seen laterally to be square, with the square ends opposed, though the commissures cannot be distinguished. More careful observation will undoubtedly reveal their presence. The body is so bent upon itself that the extremities of the second maxillæ just overlap the tip of the abdomen.

Fig. 4.

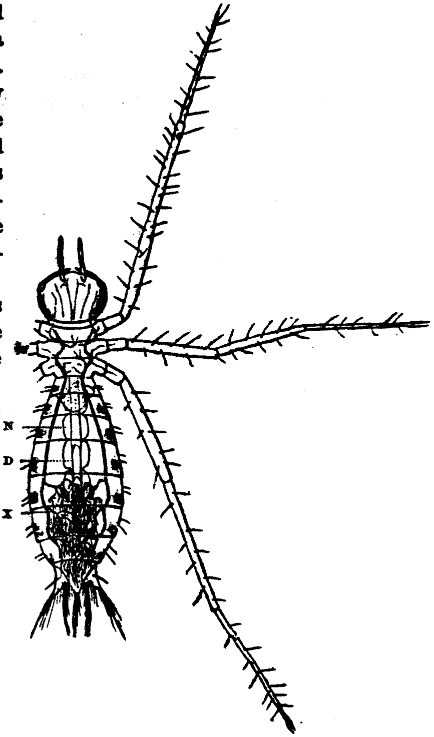


The embryo taken from the egg, but nearly ready to hatch. T, the dotted line crosses the main trachea, going through the yolk mass, now restricted to the thoracic region. At X, the tracheæ send off numerous branches around an enlargement of the intestine, where the blood is aerated; better seen in Fig. 5. The abdomen should be represented as consisting of eleven segments, the last being a minute triangular piece.

The front of the head is now still farther differentiated. The supra-clypeal piece seems to be merged in with the opthalmic ring, the sutures between them having disappeared. The insertion of the antennæ are removed higher up to just in front of the eyes, or rather the eyes have dropped down, as it were. The clypeus is broad and large, and the bilobate labrum is separated from it by a suture. The mandibles and maxillæ are still tubercular in shape, the teeth of the former not yet appearing. The two limbs of the labium are now placed side by side, with the prominent spinous appendage on the outer edges of the tip. These spines are the rudiments of the labial palpi.

The legs are long and bent partially back on themselves; at the angles partially articulated. The femoro-coxal joints are very distinct, the tarsi are directed upwards and the two claws are simple, straight, and equal in size. The tip of the abdomen ends in two unequal pairs of stylets, terminating in a long bristle. 6^a (Fig. 4.) The general form of the embryo at a still later period on being taken from the egg and straightened out, reminds us strikingly of the Thysanura, and shows quite conclusively that the Poduræ and Lepismæ, and allied genera, are embryonic forms of Neuroptera, and should therefore be considered a family of that suborder. Seen laterally, the body gradually tapers from the large head to the pointed extremity. The body is flattened from above downwards. At this stage the appendages are still closely appressed to the body.

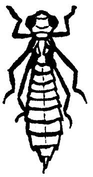
Fig. 5.



The *larva* just hatched and swimming in the water. N, ventral cord or nervous ganglia; D, dorsal vessel, or "heart," divided into its chambers. The anal valves at the end of the abdomen, which open and shut during respiration, are represented as being open. Both of the dotted lines cross one of the tracheæ. X, net-work of tracheæ.

7. This period occurs after the exclusion of the embryo, but the limbs are still laid along the body. They, however, with the mouth-parts, stand out freer from the body. The labium, especially, assumes a position at nearly right-angles to the body. The antennæ, mandibles, and maxillæ are now free, and have taken on a more definite form, being like that of the young larva, and stand out free from the body. The head is much smaller in proportion to the rest of the body, and bent more upon the breast.

Fig. 6.



The *pupa* of Diplax, in which the eyes are much larger, and the legs much shorter than in the recently hatched larva.

8. *The Larva* (Fig. 5). The head is now free, and the antennæ stand out free from the front. The thorax has greatly diminished in size, while the abdomen has become wider, and the limbs very long; and the numerous minute tubercles seen in the preceding stage have given origin to hairs. The dorsal vessel can now, for the first time,

be seen. The resemblance when in motion to a spider is most striking. Fig. 6 represents the pupa of Diplax.

ESSEX INSTITUTE, March 4, 1867.—Mr. E. S. Morse spoke of the Cephalopods, and alluded to the many fallacious stories regarding the Cuttle-fish, citing Victor Hugo's description of the Devil-fish, in which the characters of two entirely different animals were mixed.

Vice-president Goodell called the attention of the meeting to the recent donation of one hundred and forty thousand dollars, by Mr. PEABODY, for the *Promotion of Science and Useful Knowledge in the County of Essex*, and read the letter and instrument of trust from Mr. Peabody, and the reply of the Trustees.

F. W. Putnam, Superintendent of the Museum, introduced the following Resolution:—

Resolved,—That the Institute has learned with feelings of gratitude and pleasure the fact of the munificent donation of $140,000 by George Peabody, Esq., for "the promotion, among the inhabitants of the County of Essex, of the study and knowledge of the Natural and Physical Sciences, and of their application to the Useful Arts;" and while, as citizens of this county, the members of the Institute are justly proud that this donation comes from a native of the county, they are most deeply sensible of the honor conferred upon their body by its being selected as the Institution with which the Trustees of this fund are to co-operate in securing the objects of the donor.

Dr. George B. Loring seconded the Resolution with appropriate remarks, and it was unanimously adopted.

A committee of seven members of the Institute was appointed to confer with the Trustees of the Peabody Fund in regard to the co-operation of the Institute.

MAY 8. *Annual Meeting.*—Reports of the officers were read; seventy-seven resident, and sixteen corresponding members have been elected during the year, and notices of the death of five resident, and four corresponding members have been received. Five field meetings, one social meeting, and the regular evening meetings, have been held during the year. A course of five lectures on zoölogy, by Mr. Morse, has been given by the Institute. The delay that has occurred in the publication of the Proceedings and Historical Collections, it is hoped, will not occur again, now that the Institute has established a printing office. It is believed that the establishment of Mr. Bicknell as a preparator of microscopical slides and similar work will prove instrumental in the promotion of some of the objects of the Institute. The total expenditure during the year was $2,491.41, receipts $2,521.33. Four thousand and eighty-six volumes, and parts of volumes, pamphlets, etc., were received during the year, from two hundred and nine contributors. Thirteen thousand specimens have been added to the Natural History Department, by two hundred and eighty-eight donations; and sixty-six donations have been made to the Historical Department. Over four hundred zoölogical specimens have been presented to other societies, and to individuals during the year.